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ABSTRACT

Research has found that the need for personal space is greater for normal persons who are interacting with stigmatized persons, such as overweight people, and that one who is identified as deviant may be more sensitive to environmental cues and react more strongly to affective stimuli. To investigate the reactions to approach/distance among overweight and normal weight college females, 53 white women between the ages of 19 and 23 (28 overweight; 25 normal weight) were approached and given a monologue at a distance of 12, 24, or 39 inches, by a normal weight female confederate. Heart rates were measured during a 10 second baseline interval and for six 10 second intervals of the approach/distance manipulation. After the interaction, all subjects completed the Comfortable Interpersonal Distance Scale (CID) and weight and height data were collected. An analysis of the results showed that overweight females significantly underestimated their actual weights. Analyses of heart rate during the confederate's presence showed that overweight persons' heart rates were greater than normal persons' during intervals 3, 4, and 6. There was no significant difference between the two groups in personal distance needs as measured by the CID, indicating that although overweight females are generally maintained at greater distance than normals, it is because normals need to maintain the greater distance from overweight people, rather than vice-versa. (BL)

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Reactions to Approach-Distance in Overweight and Normal Weight College Females

by

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Abstract

From a large number of college students, two groups of white female volunteers were selected on the basis of their reported height and weight: an overweight group (N = 28) consisting of persons at least +11% over average weight, and a normal weight group (N = 25) consisting of persons within 5% of average weight. Heart rate was monitored for a 6-minute baseline period and a 1-minute period during which each person was approached by a normal weight (4% of average weight) female confederate to a distance of 12 inches (30.48 cm), 24 inches (60.69 cm), or 39 inches (99.06 cm). All participants completed a Comfortable Interpersonal Distance Scale (CID). Analyses of variance of heart rate for the 10-second interval during baseline and the six 10-second intervals of the approach-distance manipulation were done. While groups did not differ in terms of baseline heart rate, the heart rates of the overweight and normal weight groups differed during the third, fourth, and sixth intervals of the approach-distance manipulation. It was found that overweight and normal weight females approached to the closest distance differed in term of heart rate with overweight persons showing a significant increase during Interval 3 (F (1, 47) = 7.76, $p < .05$); Interval 4 (F (1, 47) = 7.24, $p < .05$); and Interval 6 (F (1, 47) = 9.02, $p < .01$). No significant CID differences were found.

Personal space can be described as the emotionally charged zone around each person which helps to regulate spacing (Sommer, 1969). People use past experiences in order to build cognitive models and expectations about future experiences. These past experiences and expectations result in the development of patterns of personal spacing which one person utilizes when interacting with another (Altman, 1975). Personal space exists only when another person is present, and it reflects the affective relationship between the two persons (Ashcraft & Scheflen, 1976). When personal space needs are infringed upon, stress is typically reported.

Some relationships between personal space and demographic, psychological, and environmental characteristics have been established. It has been generally found that greater personal space is maintained in actual interactions and hypothetical interactions by normals with stigmatized persons (Comer & Piliavin, 1972; Kleck, 1966, 1968; Kleck, Ono, & Hastorf, 1966; Wolfgang & Wolfgang, 1971; Worthington, 1974). Goffman (1963a, 1963b) described a stigmatized person as one who has a personal attribute or characteristic which is discrediting in the eyes of others; and suggested that these individuals are adept at managing their deviance by being sensitive to their effect on normals. It would seem that if one is identified as deviant, he or she may become more sensitive to cues in the environment and react more strongly to affective stimuli.

That overweight persons in our society are stigmatized is supported by the fact that negative attitudes and descriptions are commonly attributed to them (Lerner, 1973; Staffiere, 1967, 1972;

Wolfgang & Wolfgang, 1971). Schachter (1971) and other investigators interested in obesity (Rodin, 1974; Pliner, 1973a, 1973b; Rodin & Slochower, 1974; Younger & Pliner, 1976) have also proposed that these persons are more sensitive to cues in the environment.

A number of researchers have used measures of physical arousal and subjective reports of physical arousal in personal space manipulations with individuals who are stigmatized in some way; typically increased discomfort or stress and behavioral indications of arousal have been found. While research has been done on the space needs of normals interacting with obese persons, little has been reported on the space needs of obese or overweight persons. What is typical spacing for normal weight individuals may not be typical spacing for overweight persons; and overweight persons might be more sensitive to manipulations of personal space than normal weight persons.

In the present study, the heart rates of overweight and normal weight females were monitored during an approach to 12 inches, 24 inches, or 39 inches by a normal weight female confederate. Immediately following an interaction with the confederate of approximately 2-minutes duration, the participant completed the Comfortable Interpersonal Distance Scale (CID) developed by Duke and Norwicki (1972).

The hypotheses tested were: (1) heart rate increases are greater for overweight than normal weight females at the closest distance; (2) personal space needs as measured by the CID are greater for overweight females than normal weight females.

Method

Subjects

The subjects were 53 white female volunteer college students between the ages of 19 and 23. Subjects were chosen based on their reported weight and height, and classified as either overweight or normal weight. The overweight group consisted of 28 persons who were at least +11% overweight; the normal weight group consisted of 25 persons who were within 5% of normal weight as defined by Bray (1975).

A paid female confederate approached all participants and delivered a monologue to each person at one of three distances. The confederate was 23 years of age and of normal weight (+4%). She was not informed of the hypotheses concerning weight, and was trained to be consistent in her behavior and manner of presentation regardless of closeness of approach.

Materials and Apparatus

Heart rate was measured by a pulse transducer and a Harvard Biograph. The Comfortable Interpersonal Distance Scale (CID), a paper and pencil instrument consisting of eight 80 mm radiating lines was used to assess personal distance needs immediately following the interaction with the confederate.

Procedure

As each participant arrived for her scheduled appointment, she was told that the study was designed to gather physiological and related information on college females. After a written

informed consent was obtained, the researcher escorted the participant to the experimental room, seated her, and explained the procedure for recording heart rate. A 6-minute heart rate recording period followed. Baseline heart rate was defined as beats per minute during a 10-second interval approximately 4-minutes after the recording began.

At the end of the 6-minute period, the confederate entered the room (see Figure 1) and began to speak as she approached and seated herself facing the participant at one of the three distances, (12, 24, or 39 inches), which were unobtrusively marked on the tile floor. These distances are the medians of far intimate, close personal, and far personal distances described by Hall (1966), and have been used by a number of researchers (Kleck, Buck, Gollier, London, Pfeiffer, & Vukcevic, 1968; Leibman, 1970; Storms & Thomas 1977). These distances will be referred to as close approach, near approach, and far approach. The approach-distance was randomly selected for each person, with constraint of equal numbers in all approach-distance conditions. When the monologue consisting of descriptions of field versus laboratory research was completed, the confederate handed the subject the instructions to remove the CID from the drawer and complete it; the participant was then left alone. When she had brought the completed CID to the researcher, weight, height, and degree of acquaintance with the confederate was recorded.

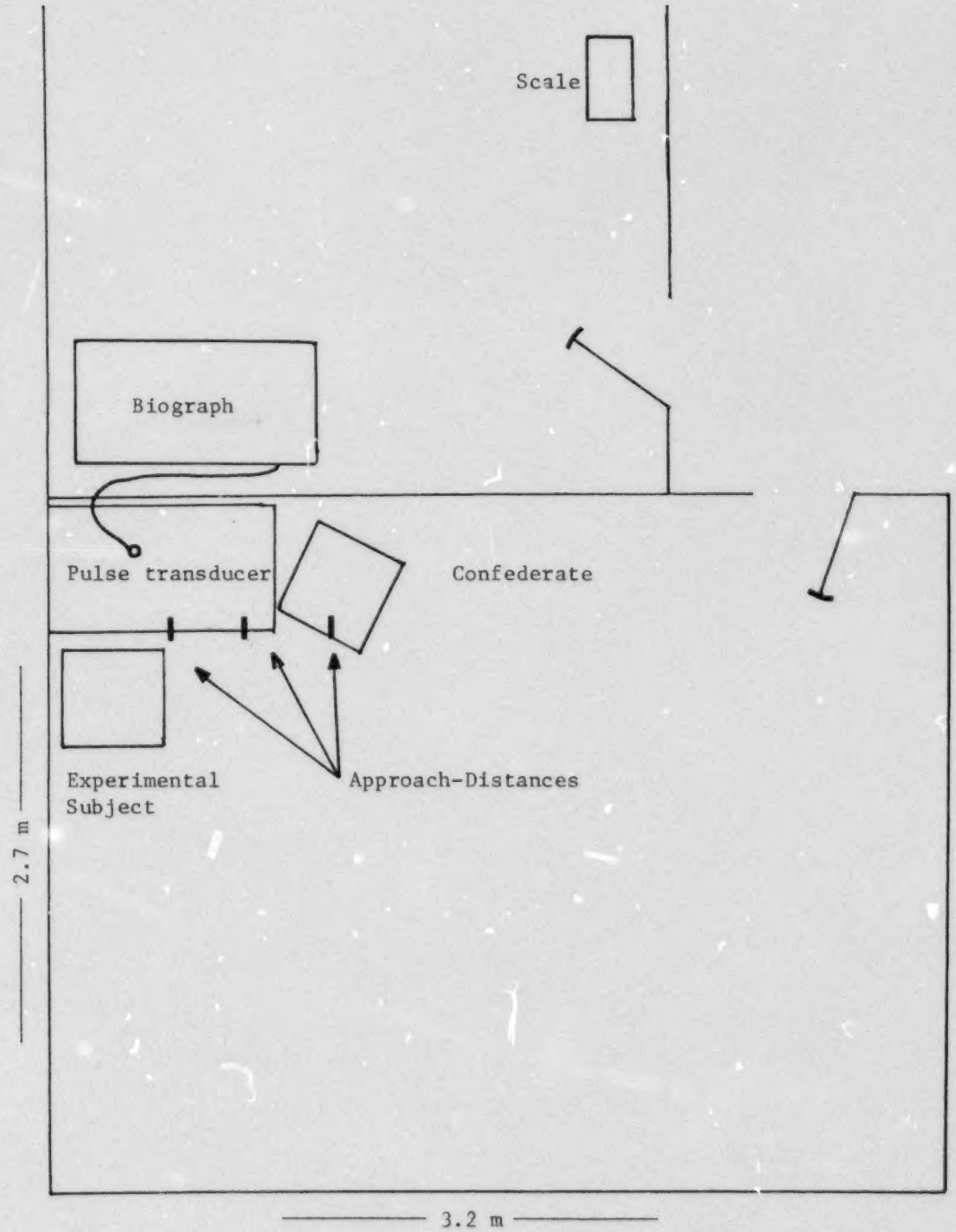

Figure 1. Diagram of the experimental and adjacent researcher's room.

Results

Actual weight as measured at the time of the experimental session was significantly different from reported weight for the overweight but not for the normal weight females (t (51) = 3.38, $p < .001$). Mean reported weights and actual weight are in Table 1.

The heart rates of the participants were examined during seven 10-second intervals. The Baseline Interval was the heart rate during the 10-second interval beginning at 4-minutes, 20-seconds of the pre-manipulation period. The remaining six intervals reflect heart rate during each 10-second interval of the one-minute approach-distance manipulation and are identified as Interval 1 - Interval 6. Figure 2 presents a summary of mean heart rates during the Baseline Interval and Intervals 1 - 6. No significant differences in the heart rates of normal weight females (79.92 bpm) and overweight females (80.36 bpm) were found during Baseline. A series of analyses of variance on the six 10-second interval heart rates of the participants during the approach-distance condition with weight and approach-distance as factors were conducted. The interaction of weight x distance on heart rate of the two groups was significant for Interval 3 (F (2, 47) = 3.55, $p < .05$); Interval 4 (F (2, 47) = 4.09, $p < .05$); and Interval 6 (F (2, 47) = 4.18, $p < .05$). For Intervals 3, 4, and 6, the heart rates of overweight persons who were approached to the close distance were higher compared to normal weight person (Interval 3 (F (1, 47) = 7.76, $p < .05$); Interval 4 (F (1, 47) =7.24,

Table 1

Reported Weight and Actual Weight of Participants

	Overweight Females N = 28	Normal Weight Females N = 25
Mean Reported Weight	142.89 lbs. (64.81 kg)	121.12 lbs. (54.94 kg)
Mean Actual Weight	155.61 lbs. (70.58 kg)	121.44 lbs. (55.08 kg)
Percentage Who Overestimated	7%	36%
Percentage Who Underestimated	93%	56%
Percentage Who Estimated Accurately	0%	8%

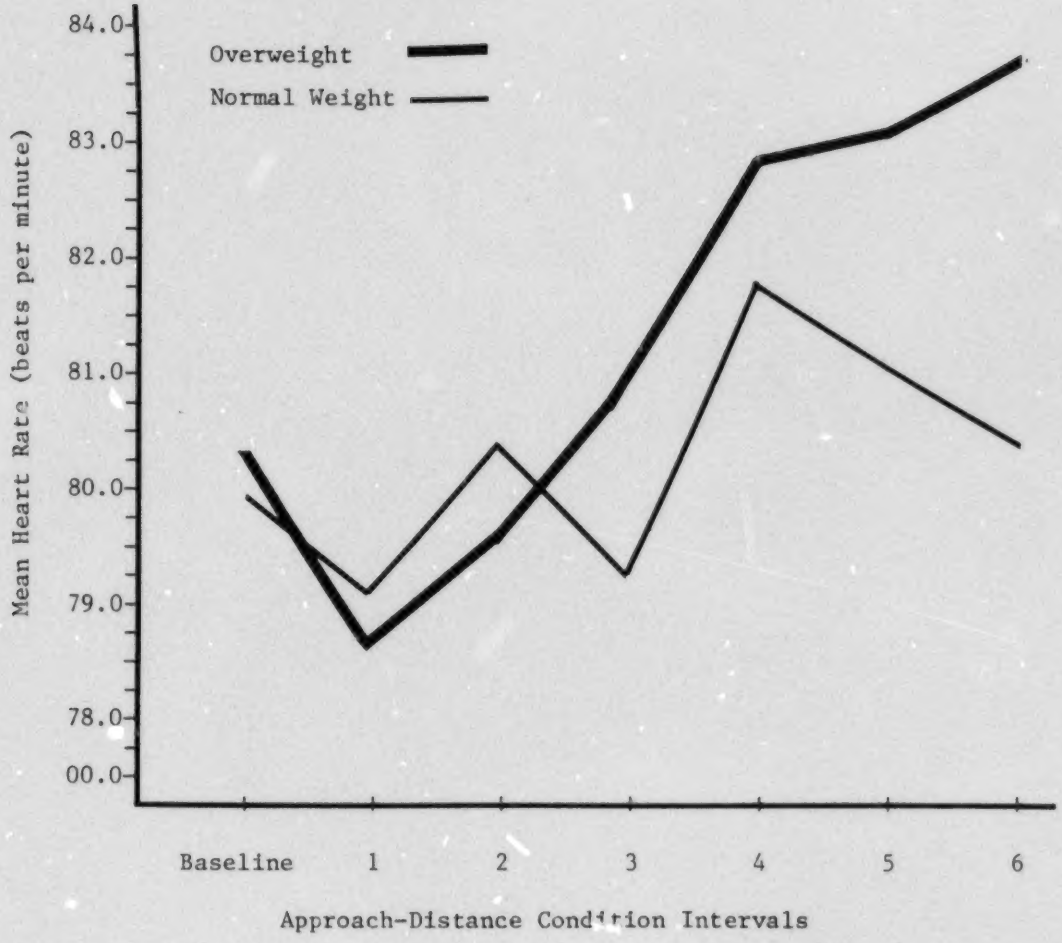

Figure 2. Mean heart rate for normal weight and overweight females during baseline and 10-second intervals during the 1-minute approach-distance conditions.

$p < .05$); Interval 6 (F (1, 47) = 9.02, $p < .01$)). Figure 3 describes the group mean heart rate for these intervals at the approach-distance conditions.

Scores of the two groups, normal and overweight, on the CID were examined by t test ($\bar{X}_n$ = 10.80 mm, $\bar{X}_o$ = 11.07mm). No significant differences in reported personal distance needs were found (t (50) = .47, $p > .05$). A group (weight) x distance analysis of variance on CID scores was not significant (F (1, 47) = 1.40, $p > .05$).

Discussion

In the present study, significant differences were found between overweight and normal weight females in reported and actual weight. Overweight participants reported significant underestimations of their actual weight. Although Wing, Epstein, Ossip, and LaPorte (1979) reported a high correlation (.98) between reported and actual weight, they suggested that overweight persons tend to underestimate their weight. Possibly, the overweight persons in the presents study were less truthful than they would have been if asked individually or if they had been told that actual measurements would be taken. It is reasonable to assume that the social stigma of being overweight deterred the overweight persons from being truthful. It may also be possible that overweight persons avoid getting on the scale, and therefore do not know their actual weight.

Examination of the mean heart rate during Baseline and Intervals 1 - 6 suggests differences in the effect of approach-distance on heart

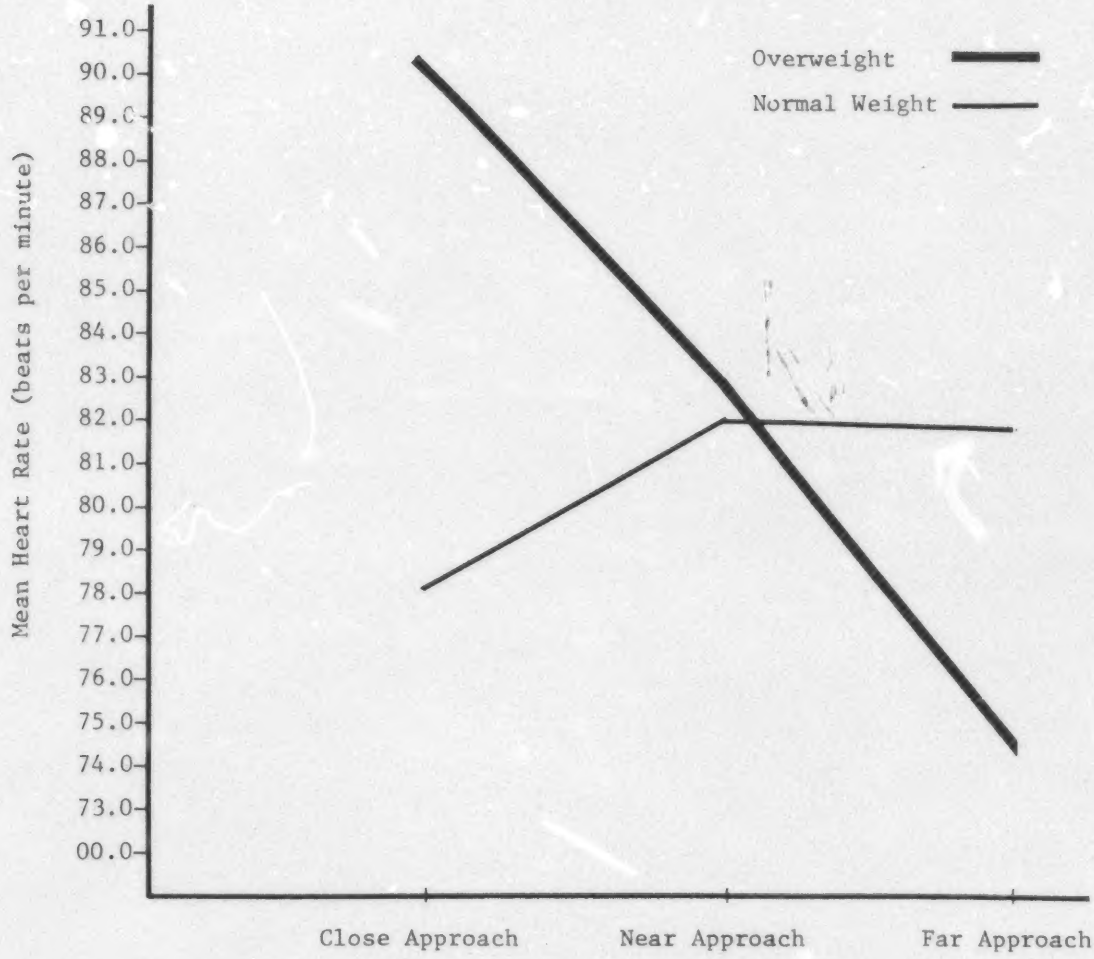

Figure 3. Mean heart rate of normal weight and overweight females during Intervals 3, 4, and 6 of close approach, near approach, and far approach-distance conditions.

rate of the two groups. As seen in Figure 2, overweight persons' mean heart rate dropped below that of normal weight persons' during the first two 10-second intervals. Overweight persons' heart rate continued to accelerate throughout the remaining five intervals. Normal weight persons' mean heart rate showed the following pattern; a drop during Interval 1, a rise during Interval 2, a drop during Interval 3, a rise during Interval 4, and finally, a drop during Intervals 5 and 6. The picture was one of alternating deceleration and acceleration for normal weight persons while overweight persons' heart rate accelerated following an initial drop. One possible explanation is that the overweight persons were attending to the confederate who was a salient stimulus. Orienting to an important external stimulus is typically accompanied by a deceleration in heart rate; acceleration in heart rate occurs when attention is focused inwardly (e. g., when the person is muscularly tense, stressed, or in an aversive situation) (Stroufe & Waters, 1977). The salience of the external stimulus of the overweight females may have been the perceived normal weight of the confederate which was in direct contrast to their own weight. Some researchers (Rodin & Slochower, 1974) have reported that overweight and normal weight females were more compliant and exhibited more modeling behavior with a confederate whose weight was noticeably more or less than their own. Rodin and Slochower also reported that overweight females attribute the behavior of the other person in a dyad to their own overweight status. In the current study, distance was a significant factor only during the close approach, not during the other

less extreme approach-distances of near and far. It has been found (Kleck et al., 1966) that intrusion (close approach) is stressful and accompanied by increased physiological arousal. Since it has also been found that overweight persons are not approached as closely as normal weight persons (Lerner, 1973; Wolfgang & Wolfgang, 1971), the close approach might well be more stressful to the overweight females than to the normal weight females.

If overweight persons are not generally approached as closely as normals, then they might be expected to report different personal distance need as measured by the Comfortable Interpersonal Distance Scale (CID). The analysis of the CID responses in the present study indicated that overweight females do not differ from normal weight females in personal distance needs. Since the task on the CID is to indicate an approach-distance where one feels uncomfortable, one conclusion possible is that although overweight females are generally maintained at greater distance than normals, it is because normals need to maintain the greater distance from overweight persons, rather than vice-versa. Even though responses on the CID do not differ for the two groups, analyses of the heart rate data suggests that overweight females compared to normal weight females are accustomed to interactions at greater distance; therfore, a close approach may be more arousing to them.

In summary, a significant difference was found between overweight and normal weight females when reported weight was compared to actual weight with overweight females significantly underestimating their

weight. Analyses of heart rate during intervals of the confederate's presence reflected significant differences between the two weight groups. Overweight persons' heart rates were greater than normal weight persons' heart rates during Intervals 3, 4, and 6. Overweight persons' heart rates were greatest at the close approach-distance compared to other distances. There were no significant differences between the two groups in personal distance needs as measured by the CID.

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